

HIGH-TEMPERATURE COMPOSITE ARTICLES AND
ASSOCIATED METHODS OF MANUFACTURE

ABSTRACT OF THE DISCLOSURE

The present invention provides a method for forming a refractory metal-intermetallic composite. The method includes providing a first powder comprising a refractory metal suitable for forming a metal phase; providing a second powder comprising a silicide precursor suitable for forming an intermetallic phase; blending the first powder and the second powder to form a powder blend; consolidating and mechanically deforming the powder blend at a first temperature; and reacting the powder blend at a second temperature to form the metal phase and the intermetallic phase of the refractory metal-intermetallic composite, wherein the second temperature is higher than the first temperature.